

PATENT APPLICATION

MULTI-PLATFORM OPTIMIZATION MODEL

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CLAIM OF PRIORITY

[01] This application claims priority from U.S. Provisional Patent Application No. 60/243,783, filed October 26, 2000.

CROSS-REFERENCES TO RELATED APPLICATIONS

[02] This application is related to the following co-pending applications, each of which is incorporated by reference as if set forth in full in this application:

[03] U.S. Patent Application entitled "System-Wide Optimization Integration Model" (020897-000110US) filed on October 12, 2001, Serial No. _____ [TBD]; U.S. Patent Application entitled "Aggregate System Resource Analysis and Diagnostics" (020897-000130US) filed on _____ Serial No. _____ [TBD]; U.S. Patent Application entitled "Correlation Matrix-Based on Autonomous Node and Net Analysis Over Disparate Operating Systems" (020897-000140US) filed on _____ Serial No. _____ [TBD]; and U.S. Patent Application entitled "Merit-Based Metric Analysis and Diagnostics of System Resource Model" (020897-000150US) filed on _____ Serial No. _____ [TBD].

BACKGROUND OF THE INVENTION

[04] Digital computer networks, such as the Internet, are now used extensively in many aspects of commerce, education, research and entertainment. Because of the need to handle high volumes of traffic, many Internet sites are designed using several groups of server computers. An example of a site network system is shown in Fig. 1.

[05] In Fig. 1, network system 10 includes four major tiers. These are communications tier 12, web tier 14, application tier 16 and database tier 18. Each tier represents an interface between a group of server computers; or other processing, storage or communication systems. Each interface handles communication between two groups of server computers. Note that the tiers are significant in that they represent the communication protocols, routing, traffic control and other features relating to transfer of information between the groups of server computers. As is known in the art, software and hardware is used to perform the communication function represented by each tier.

[06] Server computers are illustrated by boxes such as 20. Database 22 and Internet 24 are represented symbolically and can contain any number of servers, processing systems or other devices. A server in a group typically communicates with one or more computers in adjacent groups as defined and controlled by the tier between the groups. For example, a request for information (e.g., records from a database) is received from the Internet and is directed to server computer 26 in the Web-Com Servers group. The communication takes place in communications tier 12.

[07] Server computer 26 may require processing by multiple computers in the Application Servers group such as computers 20, 28 and 30. Such a request for processing is transferred over web tier 14. Next, the requested computers in the Application Servers group may invoke computers 32, 34, 36 and 38 in the Database Servers group via application tier 16. Finally, the invoked computers make requests of database 22 via database tier 18. The returned records are propagated back through the tiers and servers to Internet 24 to fulfill the request for information.

[08] Of particular concern in today's large and complex network systems is the performance monitoring and optimization of the system. The task of providing efficient monitoring information is made very difficult when a network uses multiple different sets of hardware and software (i.e., platforms). For example, database server 32 might be an Intel-brand processor running Microsoft's Access database under Microsoft's NT operating system. Database server 34 can be a Sun platform running an Oracle database. Application servers can include Intel/Microsoft, Unix, or other platforms. Similarly, web page servers can be any of a number of platforms. In general, any platform, or other combination of hardware and software (including operating systems, application programs, applets, plug-ins, dynamic link libraries, routines, or other processes) might be used at any point in a network system.

[09] Obtaining and analyzing performance and resource utilization characteristics is very difficult in multi-platform networks. This is because performance and usage parameters will not have the same meaning in different environments in different platforms.

[10] Thus, it is desirable to provide a system that improves upon the prior art.

BRIEF SUMMARY OF THE INVENTION

[11] In one embodiment the invention provides an optimization system for networks that use multiple different devices having different combinations of hardware and software (i.e., platforms).